

# New Hampshire's Clean Marine Engine Initiative



Presented by  
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**STAPPA/ALAPCO**  
**Communicating Air Quality Conference**  
**March 11-12, 2001**



**New Hampshire Department of Environmental Services**

# New Hampshire's Clean Marine Engine Initiative

- A cooperative **VOLUNTARY** effort between DES and marine engine dealers to promote low-pollution engines.
  - 4-Stroke Engines
  - Direct Injection 2-Stroke Engines
- The key to any voluntary effort is **OUTREACH AND EDUCATION.**



# New Hampshire Statistics

- Lakes and ponds: approximately 1000
- Navigable rivers: > 1000 miles
- Registered boats in N.H.: 100,000+
- Registered boats with outboard engines or PWCs = 60%
- Out-of-State boats:
  - estimated 20,000-30,000

# Air Quality Issues

## Carbureted 2 Stroke Engines

- **Nationally - Mobile sources, including marine engines, contribute:**
  - 50% of NO<sub>x</sub>
  - 42% of HC
  - 80% of CO
- **Personal watercraft (PWC) operated 7 hrs. produces HC + NO<sub>x</sub> emissions > 1998 car driven 100,000 miles (CARB)**



# Water Quality Issues

## Carbureted 2 Stroke Engines

- Up to 30% of gasoline is emitted unburned into the air and water
- Gasoline contamination of surface waters and drinking water supplies
  - MtBE and benzene
- Disruption of wildlife
  - noise





# **EPA Regulations – The Driver**

- **EPA Goal - Air Emission Reductions**
- **Agreement negotiated with the engine manufacturers (National Marine Manufacturers Association)**
- **Applies to all outboard engines and PWCs**
- **Regulations adopted – 1996**
- **Phased-in between model years 1998-2007**
- **Require 75% reduction in HC & NOx emissions by 2006**
- **Cost/benefit estimated at \$1000/ton HC reduced**

# New Hampshire's Response

- **Not anxious to follow command and control approach**
  - California mandate requires 100% of sales be low-pollution engines - 2001
  - Lake Tahoe 2-stroke ban – 1999
- **Not willing to wait for 2006 federal mandate**
- **Preference – Voluntary accelerated phase-in of low-pollution engines and PWCs**



# New Hampshire's Efforts

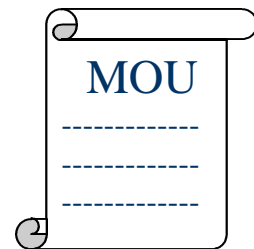


- **Spring 1999 – DES Commissioner directs air and water division staff to undertake cooperative effort**
- **Fall 1999 –**
  - **DES initiates MOU discussion w/ NH Marine Trades Association (NHMTA)**
  - **DES initiates NE regional meetings including: ME, NH, VT, MA, CT, RI, NY, NEIWPCC, NESCAUM, NMMA**



# New Hampshire's Efforts

- **Winter 2000 – MOU signed between DES and NHMTA**
  - **Voluntary goals for low-pollution outboard engine sales**
    - 50% low-pollution engines in 2000
    - 75% in 2001
    - 90% or more from 2002 to 2006
  - **Annual aggregate progress reports (no penalty)**
  - **21 dealers/marinas have signed**



# New Hampshire's Efforts

- DES presents initiative to:
  - New England Governors' Conference
  - Environmental and Community Groups
- NH agencies (DES, Marine Patrol, F&G) are leading by example: buying/using low-pollution outboard engines.





# **Benefits of Low-Pollution Marine Engines**

- Burn 35% to 50% less gas
- Use up to 50% less oil
- Save money over the life of the engine
  - Reduce air emissions by 75%
- Reduce water pollution by reducing the amount of gasoline released into surface waters



# **Benefits of Low- Pollution Marine Engines**

- Easier to start
- Quicker throttle response
- Quieter
- Reduce smoke and fumes
- Less disruptive to wildlife
- Better for New Hampshire's environment

# Consumer Economic Issues

- Average outboard engine cost is \$6,600
  - range \$600 to \$20,000
- Average PWC cost is \$6,700
- CARB anticipates price increases of \$150 to \$2,300 per engine
- EPA estimates additional average cost of \$700 per engine, or 10-15% price increase
- Significantly better fuel efficiency
- Availability



# New Hampshire's Efforts

- **DES outreach and education:**
  - **Decal, Certificate & Poster for MOU Participants**
  - **Eco-Safe Boating Practices Card**
  - **EcoWatch PSA on NH television**
  - **Webpage on DES Website**
  - **Boat Shows**
  - **Fact Sheet**
  - **Brochure**



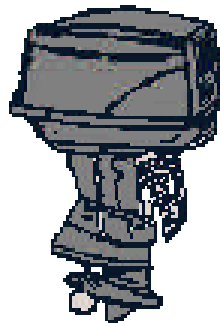
# Low-Pollution Personal Watercraft

- Bombardier (SEA DOO®)
- Kawasaki (JET SKI®)
- Polaris (Genesis)
- Yamaha (Wave Runner®)
- Honda – 4 stroke PWC planned for 2001  
(new to the PWC market)



# Low-Pollution Outboard Engines

- Mercury - Optimax (DFI) & 4-stroke
- OMC (Evinrude, Johnson) – FICHT (DFI)
- Yamaha – 4 stroke (235 hp planned for 2001)
- Suzuki – 4 stroke
- Honda – 4 stroke







## NEW HAMPSHIRE CLEAN MARINE

This certificate is awarded to

**THURSTON'S MARINA, INC.**

*in appreciation of its commitment to the*

**N.H. Marine Trades Association &**

**N.H. Department of Environmental Services**

### CLEAN MARINE ENGINE INITIATIVE

*"Supporting Good, Clean Fun!"*

*Spring 2000*



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Signature, President NHMTA



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Signature, Commissioner NHDES

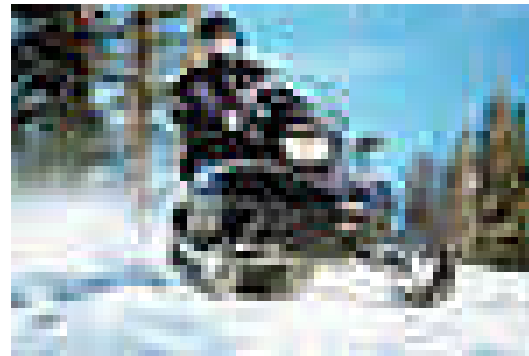
# New Hampshire's Success

- Engine Manufacturers say “all of the clean engines are going to California and New Hampshire!”
- 2000 Progress Reports – Preliminary results:
  - Thurston's Marina reached 85% sales rate (>75% 2001)
  - Shep Brown's Marina reached almost 95% sales rate (>90% 2002)



# **New Hampshire's Efforts Next Steps**

- **Get 100% participation of outboard engine dealers in MOU**
- **Get PWC dealers to sign MOU**
- **What's next?? Snowmobiles? Alternative fuel marine engines?**



# Clean Marine Engine Initiative

- Air regulations are *driving* the initiative.
- Water quality issues are *selling* the initiative.



For more info, contact:  
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Or visit our website at:  
[www.des.state.nh.us](http://www.des.state.nh.us)